Substantiated analysis of the German experience of LFEEE based on REEG

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ALLIES
Activating and Learning from Local Investments in Energy Savings

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The development of an idea: from Zukunftsfonds to REEG

Future bonds and a future programme

The REEG (Regional Energy Efficiency Cooperatives) model first came about in the book 'Future Bonds. How Germany Can Become a Model for Sustainable Growth and Global Wealth.'4 (in German: 'Die Zukunftsanleihe. Wie Deutschland ein Modell für nachhaltiges Wachstum und weltweiten Wohlstand werden kann.') by Professor Dr. Maximilian Gege, B.A.U.M. e.V. Chairman, published in 2004. In it, Professor Dr. Gege proposes 10-year future programme, financed by 'future bonds'. These capitalise the private financial assets of citizens based on a '3 x 5%' formula: of (then) four billion euros of financial assets, five percent would be acquired as a one-off and on a voluntary basis, with five percent of 200 billion euros being collected each year as a charge on inheritances, and interest then being charged on money invested at a rate of five percent. Together with other measures such as the subsidy reduction and improvements in efficiency, funds of 400 billion euros are released in the first year, with 175 billion euros being released in the second to tenth year, which can be invested in the defined future tasks, ensuring that Germany is equipped for the future in important areas as part of a 10-year future programme.

The 'Future Bonds' book was intended to be a report to the World Future Council, as well as decision-makers, visionaries and people in Germany who were looking for a successful solution to problems and wanted to contribute to a sustainable world.

The response from the fields of politics and administration, business and science were consistently positive. Future bonds were considered to be a potential ALL for ALL contribution for solidarity and a real win-win strategy. Above all, it was acknowledged that it was not the heavily indebted state that had the most responsibility and should mainly be burdened by the future programme here, but citizens who have access to enormous wealth.

Regardless, the model wasn't implemented. The magnitude of the future programme in its hundreds of billions and its sometimes radical content - for example, reducing government subsidies by 80 percent - proved to be too great a challenge for realpolitik. This prompted Professor Dr. Gege to further develop his concept.

B.A.U.M. Zukunftsfonds e.G.

Professor Dr. Gege 2011 introduced a new concept in the book 'Success Factor: Energy Efficiency. Investments That Pay Off.' (in German: 'Erfolgsfaktor Energieeffizienz. Investitionen, die sich lohnen.'). The biggest changes in comparison to the previous concept of future bonds included structuring the instrument, now named B.A.U.M. Zukunftsfonds,

in the form of a registered cooperative, and substantively focussing on the future task of energy transition - and especially on its second pillar of energy efficiency and energy conservation. The new concept was also implemented in practice, mainly through the foundation of B.A.U.M. Zukunftsfonds e.G., which was entered into the Register of Cooperatives in the first quarter of 2011.

A decision was made to structure the organisation in the form of a cooperative because it was particularly suited to promoting energy transition in Germany through sustainability-conscious citizens as investors. Cooperatives are values communities that generally work towards ethical goals as well as economic goals. This includes fair and just behaviour that comprises approaching ownership and opportunities for future generations in an appropriate way. These values and goals also underpin B.A.U.M. Zukunftsfonds e.G. Any person in Germany who is prepared to contribute some of their wealth to market conditions that focus on energy transition - especially energy efficiency transition - can be involved in the cooperative.

German Cooperative Association Law (Genossenschaftsgesetz) forms the legal basis for B.A.U.M. Zukunftsfonds e.G. as a business. Business activity consists of the following: Investors such as private households (citizens), companies, foundations and others acquire cooperative shares in B.A.U.M. Zukunftsfonds e.G. in exchange for a contribution and provide 'mezzanine loans'. Fixed interest is charged on the mezzanine loans (originally five percent p.a., then four percent). The cooperative funds are used for investments in profitable measures that increase energy efficiency, energy conservation and expand renewable energies in companies and public authorities. High-yield projects with a payback period of up to five years take priority here. The payback period can also be up to ten years, particularly in the public sector.

Investment amounts are repaid through savings made, based on the savings potential identified. Clients benefit from savings of 10 to 30 percent in the first year alone. The fund benefits from savings of 70 to 90 percent for interest and redemption payments to be made, and for management expenses for the cooperative.

B.A.U.M. Zukunftsfonds e.G. uses the energy saving performance contracting - or energy performance contracting (EPC) - model, but on a cooperative basis. It is a 'social business' and therefore differentiates itself from private contractors that are GmbHs (Limited Liability Companies) or AGs (Public Liability Companies) and have been in the market for years.

Of around 1,000 existing energy cooperatives in Germany13, B.A.U.M. Zukunftsfonds e.G. mainly differentiates itself through its business purpose. For existing energy cooperatives, this is either exclusively or predominantly building and operating renewable energy plants. B.A.U.M. Zukunftsfonds e.G.'s core business is energy efficiency and energy conservation. B.A.U.M. Zukunftsfonds e.G. is the first energy efficiency cooperative in Germany.

Reference examples of energy efficiency projects implemented by B.A.U.M. Zukunftsfonds e.G. can be found at www.baumzg.de/referenzen.

Moving B.A.U.M. Zukunftsfonds to a regional level

In his book 'Success Factor: Energy Efficiency.', Professor Dr. Gege explains that B.A.U.M. Zukunftsfonds e.G.'s idea is not just better, but also easier, if it is not just realised on a national level, but on a regional level as well. It is conceivable for corresponding cooperatives to be established both on a federal state level, and on the level of towns, cities and regions. Two model calculations for federal states and for municipalities of varying sizes showed how the realisation of B.A.U.M. Zukunftsfonds, or a B.A.U.M. energy efficiency cooperative, would look on a regional level in terms of figures and magnitude.

A contribution of just one percent of the private net wealth available in federal states to a national future fund cooperative in ten states gives funds in the billions, and a contribution of the same amount to cooperatives six states gives funds in the hundreds of millions for a national energy efficiency programme.

The B.A.U.M. Zukunftsfonds cooperative model appears to be particularly well-suited to being applied on a municipal level. Energy transition either takes place locally or not at all. This means that citizens are able to invest in efficiency projects right on their doorstep. In turn, in a model calculation for municipalities of different scales, a one percent contribution from private wealth gives a municipal future fund volume of around 25 million euros for municipalities with 10,000 residents, around 125 million euros for 50,000 residents, around 250 million euros for 100,000 residents, around 625 million euros for 250,000 residents, around 1.25 billion euros for 500,000 residents and around 2.5 billion euros for one million residents.

'B.A.U.M. Zukunftsfonds - pilot project in three municipalities' funding project

To prove the transferability of the B.A.U.M. Zukunftsfonds e.G. model on a regional level in practice, B.A.U.M. e.V. submitted an application to the Federal Ministry for Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, BMU) for the funding project 'B.A.U.M. Zukunftsfonds - pilot project in three municipalities' at the end of 2012, which was approved in September 2013. The overall objective of this project is described below: 'The objective of the project is to implement a new, innovative model that mobilises private capital for financing, thus pushing forward the realisation of measures for energy and CO2 savings. Especially when taking into consideration the fact that municipalities have little financial freedom, this has the possibility of opening up new opportunities for a municipality to actively participate in realising energy

transition. The project is also expected to help support local companies in conserving energy and implementing efficiency measures in private households.

REEG as a new business model

Four-in-one

The German government proposed an efficiency strategy through the National Energy Efficiency Action Plan (Nationaler Aktionsplan Energieeffizienz, NAPE) as an integral part of the 2020 Climate Protection Programme, which had the following cornerstones:

- Energy efficiency in the building sector;
- Energy saving as a yield-bearing model and a business model; and
- Personal responsibility for energy efficiency.

NAPE called for the development of new business models for new players in the energy service provider market. REEG is a new model and a new player in this sense.

REEG differentiates itself from the existing 'classic' energy cooperatives, with which it shares the same cooperative organisational form, in both its object and its working method. The core business object is energy efficiency and energy conservation. The working method is contracting. In fact, REEG combines four individual ideas or models in one innovative new model:

1. The idea of a future fund
2. The energy conservation contracting model
3. The cooperative model
4. Ideas from the region

Through a **future fund**, private citizen wealth is collected for a fund that invests the money in future projects, and particularly in energy transition in this case. Investors, who are mainly citizens, receive a return in the form of a fixed interest rate.

Today, **contracting** is used as an umbrella term for various different kinds of energy services. A specialist company, the contractor, takes on the partial services of planning, financing, building and operating energy plants for the client; the contracting client. Such temporary outsourcing allows the energy supply to be redeveloped in an economic and environmentally friendly way, without requiring internal investment. A specific type of energy contracting is energy saving performance contracting, also known as energy performance contracting (EPC). In this type of contracting, the contractor realises and finances investments in improving energy efficiency and refinances the costs from the

savings. With less than a ten percent market share for energy contracting, EPC has played a minor role to date. However, it is particularly suitable for implementing energy efficiency measures. The federal government explicitly considers contracting to be an innovative business model within the scope of NAPE.

Cooperatives have a long history in Germany. The German Cooperatives Act defines them as a union of people 'whose purpose is to promote the acquisition or economy of its members or their social or cultural concerns by jointly operating a business.' Currently, there are around 8,000 cooperatives in Germany, of which 1,000 are energy cooperatives. These were mainly founded in the past twelve years and have retained their business forms throughout the government's 'Energiewende 1.0', or 'Energy Transition 1.0', which brings citizens, energy providers and municipalities closer together to jointly finance and realise renewable energy projects. With its characteristic principles such as self-help, personal responsibility, 'one people, one voice', the cooperative organisational form is also suited to promoting 'Energiewende 2.0', or 'Energy Transition 2.0'.

As the fourth key feature of REEG, **regional ideas** mean that a regionally connected area - generally several municipalities - takes on an issue and drives it forward it in the region using human, material and financial resources: 'From the region - for the region.'

REEG organisational model and functionality

REEG is a special kind of citizens' cooperative. Under ideal circumstances, it brings all relevant interest groups (stakeholders) closer together: the municipality or municipalities, businesses, citizens, churches, associations and other stakeholders. REEG members can and should mainly be citizens, but can also be municipalities, companies, foundations and other organisations. REEG primarily acquires capital from its members, through cooperative shares, but mainly through loans, and invests the funds in profitable energy efficiency measures for its clients. These are mainly companies, local authorities, churches, associations and other establishments.

REEG works with qualified technical partners (planners, equipment suppliers, workshops) from the region. REEG manages and controls implementation, but is not directly involved with implementation.

REEG covers its costs - interest from member loans and repayments as well as operating and management costs for the cooperative - from energy savings. 'Costs' also includes a part of the savings (for example ten percent) that the client benefits from from the start, as per the agreement.

Differentiation from related models and credit financing

REEG is an innovative yield-bearing model and business model for energy savings based on contracting. Related models for outsourcing energy efficiency include

- classic energy contracting;
- crowdfunding models; and
- investment funds for energy efficiency.

Like REEG, all three models are an alternative to the traditional approach of implementing energy efficiency measures in-house using credit financing. How does the REEG model differ from other models and from bank financing?

Classic energy contracting - the main business area for contractors is energy supplier contracting. In contrast, energy performance contracting (EPC) is only offered by a few contractors. The share in the Verband für Wärmelieferung (Heat Supply Association) was six percent in 2016.

REEG's EPC model differentiates itself from the few EPC providers on the market in several ways. The first difference is the cooperative's organisational form; traditionally, EPC companies are GmbHs or AGs.

This means that REEG does not aim to maximise profits; instead it strives to promote the economic, social and ecological concerns of its members. The second difference is the ownership structure. In perfect circumstances, the REEG business is owned by all regional stakeholders: municipalities, businesses, associations and, predominantly, citizens. In contrast, the majority of traditional EPC contractors are owned by energy companies, plant manufacturers or other individual companies. The third considerable difference is: REEG's core business is not selling energy or plants, but conserving energy. This is different to traditional contractors: their core business is generally energy or plant supply. For them, EPC is more or less an insignificant sideline business, in terms of volume.

Crowdfunding - the REEG model shares similarities with crowdfunding platforms, through which citizens can jointly invest individual amounts of money in environmentally-friendly energy efficiency projects led by companies, municipalities, associations and other institutions. The most well-known crowdfunding platform that does this is bettervest. REEG and bettervest have the same business purpose - energy efficiency and energy conservation - and both use the EPC model. The main difference is in the service offering. REEG offers an all-in-one package, which consists of realising investments for the client with a savings guarantee, plus financing, plus warranty. Bettervest essentially acts as a financing mediator between the client and the crowd, as well as providing communications and marketing services. REEG's conditions for clients are generally significantly more beneficial, despite its

wide scope of services, as the subordinated loans carry a lower rate of interest due to the lower risk for the investor. As a cooperative, REEG doesn't request a commission, and the management and handling fees are charged purely on a cost-covering basis.

Private investment funds are increasingly investing in ecological or sustainable projects. The most well-known and largest European investment fund that finances infrastructure projects that are important for energy transition using private capital is the 'SUSI' fund. SUSI focuses on generating renewable energies, optimising energy efficiency, energy storage and smart grid. The energy efficiency fund (SUSI EE) that SUSI advises, focuses on identifying and implementing energy efficiency projects based on the EPC model in the areas of industrial processes, building infrastructure and public infrastructure, and is able to invest a total of 300 million euros in energy efficiency projects.

REEG and SUSI are similar in that they have the same business purpose and they apply the EPC model. Both have public and private clients. However, SUSI is purely a financial service provider. SUSI is not a contractor itself, and instead finances contractors. However, the minimum project size is one million euros, whilst REEG implements and finances small and medium-sized projects in the tens and hundreds of thousands. The conditions are also different, although less so than when comparing to the bettervest model. The SUSI fund's return is five to six percent (REEG's is four percent). SUSI charges a performance fee of 20 percent, whilst average annual REEG costs total 2.5 percent.

In-house and bank financing - REEG and the three other energy efficiency business models that are based on EPC both differ from the traditional implementation of energy efficiency projects funded in-house and through bank financing. This partly manifests itself in the scope of the service offered, which departs from pure financial services, and partly manifests itself in the additional benefits associated with the new business models. In principle, all four contracting models have a neutral impact on the client's balance sheet. 100 percent of the investment volume can be provided, without any equity. As credit is not required, the credit rating is not negatively impacted. For the REEG model and the traditional EPC model, the contractor does not just take a financing role, but also realises the investment. This also applies to the SUSI model, where financiers and contractors are two separate parties. The contractor is financed by SUSI. The client is then able to focus solely on its core business. Only the bettervest model provides funding as its main service, like a bank, and this is supplemented by additional services.

REEG Unique Selling Point - no other energy efficiency outsourcing model on the market offers energy efficiency measures as a service, adding the greatest possible value to the region, **and**

- the benefits of a cooperative business form that, as an example, promotes joint goals, regional energy efficiency, the highest insolvency protection, limited liability for members **and**

- an attractive investment opportunity in energy efficiency for citizens, all at the same time.

REEG is much more than just a financing model. It offers a one-off all-in-one efficiency package, from consultancy to technical partner selection, obtaining cost estimates and calculating profitability, implementing measures associated with a savings guarantee, through to financing; either in whole or in part.

It differs from banks, which finance energy efficiency measures with credit, from crowdfunding, which is a marketplace for credit tied to energy efficiency, from investment funds, which entrust third parties to carry out technical implementation (contractors), and from traditional contractors, which primarily set aside the economic interests of the owner and often have opposing business purposes. Last but not least, REEG's holistic approach manifests itself in its offering to citizens in the region to finance energy efficiency transition, meaning they therefore benefit from it.

REEG approaches and steps

Based on our experiences from the pilot projects, we see two ways in which an REEG can be established: a) By founding a new energy cooperative that is primarily dedicated to energy conservation and energy efficiency; and b) by expanding the business area of an existing energy cooperative.

Founding a new cooperative will take longer. More steps are needed. It has the advantage that the REEG structures will be specifically aligned with energy efficiency and it will be possible to include all relevant stakeholder groups from the start. If the REEG were to take the approach of expanding the business area of an existing energy cooperative, this would be a shorter process. However, the structures are not completely aligned with another business model (EPC) and it generally (still) does not represent all relevant regional stakeholder groups.

Founding a new cooperative in six steps

Step 1: Form a founding working group

Who can set the ball rolling for the founding of a cooperative? In principle, the initiative can be started by any of the local or regional players (stakeholders). This could be citizens who are committed to the environment, or cooperative banks, or even better, political and administrative representatives.

The REEG project considered municipalities to be particularly well-suited to providing impetus to an REEG. They are generally at the heart of local climate protection and energy transition activities. Almost all municipalities support the national CO2 reduction targets and energy saving objectives through local or regional plans and programmes. There is barely one municipality that is not already actively contributing to energy transition.

And municipalities can also take on a leading role when it comes to energy efficiency - as an initiator, moderator and coordinator when establishing an REEG. If the initiative originates from municipalities, this generally improves the level of acceptance and participation of the relevant social groups in the project.
In the pilot municipalities, the project proved that it was beneficial for municipalities (towns and regions) to invite local or regional stakeholders who might be interested in energy efficiency to a kick-off meeting. The following groups or persons are considered to be potential invitees:

Municipality representatives (politics and administration), for example councillors for environment, heads of environmental agencies, heads of climate or energy agencies, climate protection managers, heads of building management/street lighting.
Business representatives, e.g. Chamber of Industry and Commerce (Industrie- und Handelskammer, IHK) and Chamber of Trade (Handwerkskammer, HWK), e.g. the Guild of Craftsmen, the Electrical Guild, the Guild of Heating/Plumbing/Climate, development agencies, banks, energy agencies, energy consultants, project developers, the Federation of Cooperatives (Genossenschaftsverband).
Citizen, association and science representatives, e.g. associations, parishes, nature conservation associations and environmental associations, citizens' environmental initiatives, consumer advice centres, universities, technical colleges, etc.

The goal of the kick-off meeting is to introduce the REEG project and business model, and to encourage as many representatives from the three stakeholder groups of municipalities, businesses and citizens to declare their willingness to actively participate in establishing the REEG as part of a working group (REEG WG).

The REEG WG's main task is to create conditions for founding an REEG, which predominantly includes:

- drafting written articles of association for the cooperative and selecting an auditing association (legal framework);
- drawing up a business plan (commercial basis); and
- there being at least three founders and at least two people who are willing to take on a board member role, and of at least three people to take on a supervisory board role (HR basis).

In the pilot municipalities, it was proven to be a good idea to form sub-working groups (SWG) to draft the articles of association and to draw up a business plan.

Step 2: Drafting the articles of association

The REEG's articles of association are its internal constitution. They particularly govern the legal relationships between the cooperative and its members. Based on the German Cooperatives Act (Genossenschaftsgesetz, GenG), the following points must be included: name and registered office of the cooperative; object of the company; regulations concerning the obligation to make further contributions (liability); provisions concerning the members' general assembly; provisions concerning the form of announcement for the cooperative; the amount to which individual members can become involved through contributions (shares in the business) as well as statements on the formation of a statutory reserve.

Step 3: Drawing up a business plan

Initially, it is a practical step to estimate the regional potential for energy efficiency investments and capital from citizens. Persons who wish to found an REEG should have an idea of what efficiency measures would be feasible to whom, and to what extent from the perspective of profitability, and how many of these measures the REEG could realistically be involved with. In turn, this depends on the amount of capital that the REEG is able to acquire in the region.

Hence, a double potential analysis should be carried out: how much capital can be acquired and how big is the project's potential?

Step 4: Inaugural general assembly

Once the articles of association have been drafted and the business plan has been drawn up, founding can take place as part of an inaugural general assembly. In this assembly, the founding group puts forward the REEG's business idea, the articles of association, the business plan, and where applicable, initial projects as well. It has been proven that a representative of the audit association is a good choice of leader for the inaugural general assembly, as they are already familiar with the REEG project and its specific features, possibly through previous assistance provided in drafting the articles of association and drawing up the business plan.

The REEG is founded by the founding members signing the articles of association. The founding members all form the first general assembly, which immediately follows. The general assembly decides on the number of supervisory board members and their term in

office, and elects such members. Depending on the articles of association, either the supervisory boards or the general assembly then elect the board. As with the supervisory board, we recommend that there is an uneven number of members to avoid any stalemates being reached.

The REEG is in the course of formation once the articles of association have been defined. It can then be publicly represented. This is practical and helpful for the REEG's public communication, for member recruitment and for initial discussions for projects. It is not recommended that legal transactions are made in this phase, as all members are still personally liable to an unlimited extent whilst the REEG is in the course of formation. The limitation of liability to REEG assets shall only apply for the cooperative entered into the register (REEG e.G.). Therefore, up until registration, either no transactions should be made or only transactions that have no risk should be made.

Step 5: Auditing association opinion

After founding, the REEG board shall engage the selected auditing association to audit the organisational formation documents (articles of association, business plan, etc.) All cooperatives in Germany must be members of a statutory auditing association (Federation of Cooperatives), which carries out such a formation audit. This is a key condition of becoming a registered cooperative. The auditing association confirms that there are no risks to the members' assets and no risks to clients
in an audit opinion.

Step 6: Entry into the Register of Cooperatives

If the audit opinion has been provided, a request can be made for the REEG to be registered. For this purpose, the organisational formation documents that have been awarded the audit opinion must be sent to the Regional Court (Court of Registration) responsible for the Register of Cooperatives where the REEG has its registered office. The board's signatures must be notarised when being entered into the Register of Cooperatives. The notary then registers the REEG via the Court of Registration's electronic court mailbox. The REEG receives confirmation of registration in writing, as well as an excerpt from the register. Once registered, the REEG is a legal entity and a business within the meaning of the German Commercial Code (Handelsgesetzbuch, HGB). Limitation of liability now comes into effect for the board, and the REEG is able to accept other members.

Expanding the business area of an existing cooperative

The approach of expanding the business area of an existing energy cooperative to become an REEG is a shorter process. Less steps are required, as the cooperative has already been founded and the bodies have been appointed. If there is an existing energy cooperative, a review should be carried out to determine whether it can be converted into an REEG.

The prerequisite is that the existing cooperative is prepared, and in the position, to expand its business area to energy efficiency and to restructure the cooperative accordingly. It is not sufficient to simply supplement the articles of association. Energy efficiency is a different and more complex matter than building and operating renewable energy plants. Firstly, it changes the number of projects and the size of projects. Whilst traditional energy cooperatives carry out a few large-scale projects in the millions, energy efficiency cooperatives have a number of comparatively small-scale projects. The investment amounts generally range from 10,000 euros to less than 100,000 euros here. Accordingly, the overall expenditure required to manage the cooperative's projects is also higher.

Secondly, energy efficiency measures require a number of completely different technologies. There are around a dozen cross-sectional technologies that are used in practically all industries, and hundreds of industry-specific efficiency technologies. These relate to heating just as much as they relate to electricity and fuel. Even if the cooperative doesn't have this technical know-how itself, and 'just' has to manage technical resources, this cannot be done with the volunteering structures of traditional energy cooperatives. Here, a key point is: an REEG needs full-time management!

Thirdly, the membership structure is generally different. In its pure form, the REEG is a citizens cooperative that represents all large regional stakeholder groups, i.e. not just citizens but also municipalities and businesses. However, existing cooperatives may not want the structure to change.

But if a consensus can be reached for reclassification, it is the easiest way to form an REEG from a formal view point. It eliminates the need to form a new cooperative and look for board and supervisory board members. The preparatory phase for the REEG is generally significantly shorter. Establishment is also cheaper as the initial audit fee and any registration fees do not apply.

In terms of process, the following steps are relevant for an existing energy cooperative expanding its business area:

Step 1: Willingness of an existing cooperative to be involved in the EPC business area

It is key that the existing cooperative and its bodies (board, supervisory board, general assembly) are willing to expand the practical business activity beyond the traditional fields of electricity generation, heat generation and grid operation to the new business area of energy efficiency, in the knowledge that EPC is a different type of business. On the other hand, including energy efficiency as an energy cooperative's business object brings together something that goes hand in hand with energy transition: expanding renewable energies and energy savings.

Step 2: Amendment to the articles of association (if necessary)

Many energy cooperatives have either not defined energy conservation and energy efficiency as the purpose and object of the cooperative at all, or have not defined it sufficiently for the purposes of operating as an REEG. In this case, the articles of association must be amended through the general assembly. This approach was taken by the existing VR EnergieGenossenschaft Oberbayern Südost e.G., alias REEG Berchtesgadener Land, in the pilot project.

A number of energy cooperatives have already adopted measures for improving energy efficiency and for energy contracting into the articles of association, without having previously had this type of business activity - for example, Energie- Genossenschaft Fünfseenland e.G., Herrsching (Bavaria). In such cases, the articles of association may not need to be amended, which once again simplifies and shortens the process of establishing the REEG.

Step 3: Adding energy efficiency to the business plan

Even if the articles of association do not have to be amended, the business plan does. This is to add 'energy efficiency'. In principle, this process is not different to the process followed when founding a new cooperative, except that the amended plan does not have to be reviewed by the auditing association straight away, and instead the review can be deferred to the next regular annual audit.

Step 4: Entering the amendment to the articles of association into the Register of Cooperatives (if necessary)

If the articles of association have been amended, a resolution must be passed by the general assembly for the amendment and it must be entered in the Register of Cooperatives by a notary.

REEG's practical business in four phases

Phase 1: Feasibility review

Step 1: Differentiating clients

This involves a basic assessment of whether a client request can and should be pursued by the REEG or whether it is feasible from the perspective of the REEG.
If this concerns **private clients** such as companies, a church organisation, an association or another private establishment, the client can award the required measures to an energy service provider without a formal tendering process.

In contrast, **municipal clients and other clients in the public sector** are subject to public procurement law (Vergaberecht). They are required to put out a tender for deliveries, building services and other services, which also includes energy performance contracting (EPC). The REEG can take part in public EPC tenders and bid in these.

Credit checks also have to be carried out for private companies, whereas this step can be omitted for municipalities or businesses in the public sector. For clients such as church organisations or associations, the respective REEG board enquires about creditworthiness. For companies, it is recommended that creditworthiness is checked first (e.g. by using Creditreform), before further steps are taken.

Step 2: Identifying measures

For public sector clients, the tender generally sets out the measures subject to the REEG feasibility review. For private clients, there are two possibilities: Clients who already have a clear idea of what energy saving measure(s) they want to implement - for example, installing an efficient lighting system - and clients who initially just want to know what energy efficiency measures would be suitable for implementing in their business or facilities. If the client already has a clear idea what it wants, you can skip to step 3, 'Feasibility review'.

If the client wants an initial overview of all suitable efficiency measures, an initial consultancy session with a qualified energy consultant is recommended. **Energy consultancy** is a systematic process through which sufficient information about the existing energy consumption profile of a building, an operation or an industrial or commercial system is requested in order to determine and quantify the options for economic energy conservation and to summarise the outcomes in a report.

The REEG does not provide energy consultancy itself. It refers its clients to an energy consultancy network in the region and, if requested, assists in finding a suitable energy consultant. Energy consultants offered include consultants from B.A.U.M. Consult GmbH.

The client must select and engage the energy consultant itself. The REEG recommends that its clients use available state **funding programmes** (e.g. the 'Energy Consultancy in Medium-Sized Businesses' funding programme), where applicable. The objective of energy consultancy is to contribute to bridging the information gap in small and medium-sized enterprises, recognise energy saving potential and realise energy savings.

Step 3: Feasibility review

To be able to decide whether an REEG taking on a requested energy efficiency measure is economically viable, a feasibility review has been developed that every REEG can use. If this is successful, you can skip to Phase 2, 'Preparing an offer'.

The aim of the feasibility review is to determine whether the measures required are expected to be feasible under REEG conditions within an acceptable payback period. For this purpose, B.A.U.M. Consult offers an Excel-based evaluation tool. Each REEG can ultimately decide for itself what payback period is 'acceptable' to them.

In the B.A.U.M. model, we have set the standard upper limit at seven years for companies, twelve years for municipalities and ten years for church organisations and other not-for-profit institutions such as associations. It is possible to exceed the upper limits in certain cases.

The first foundation for the feasibility review is a simple **questionnaire** that is applicable to all user groups (companies, municipalities, etc). The questionnaire

1. helps to identify areas in which the establishment is planning or wants efficiency measures; and
2. determines key energy figures that can be used for an initial numerical comparison between the starting point and the future situation.

Based on the input given in the questionnaire, the REEG decides whether it is appropriate for the REEG to implement the measures. If it is, other important information is obtained from the requesting establishment or the potential suppliers of the new equipment.

The actual **feasibility review** can then be carried out using the Excel-based tool. This allows runtimes, risks and effects for the measures to be assessed, using the results of the questionnaire and the variable assumptions. The computational tool uses a number of input parameters about a planned measure to determine a number of evaluation results, which are mainly

- the cash flow when an REEG realises and finances the measure, taking into account a complex investment plan with the project owner's equity ratio (equity or debt capital, subsidies) where necessary; and
- the effects of efficiency measures on CO2 emissions.

The tool helps those responsible at the REEG to easily evaluate the 'feasibility' of a measure. Loosely speaking: if the tied-up capital period for the REEG investment is shorter than the guarantee period for the equipment installed, the measure can generally be financed by the REEG. This means: the investment can be repaid using savings before the guarantee period ends.

Phase 2: Preparing an offer

An offer is prepared as an energy savings guarantee contract if the feasibility review was successful. In the contract, the REEG guarantees the client energy savings, or annual cost savings, as a percentage and estimates the contracting rate that the client is required to pay each month to the REEG if it accepts the offer. Phase 2 is the most significant and most expensive phase in the whole project process.

Selecting technical partners, obtaining quotations, technical partner contract

In contrast to the private energy saving contractors on the market, the REEG does not implement measures itself, and instead employs qualified partners for the entire technical implementation - from the region if possible. Here, a number of different configurations are possible for technical partnerships, where consortia of technical partners are generally used:

- regional craftsman's businesses together with equipment wholesalers and a planning office if necessary;
- specialist optimisation firms for a certain technology, e.g. for optimising lighting, heating systems or refrigeration technology, that offer a one-stop-shop for planning and technical implementation, but may also be prepared to cooperate with regional businesses for technical implementation; and
- plant manufacturers together with a regional craftsman's business and a planning office if necessary.

The top criterion for selecting the technical partner is the qualification and willingness of the partner to provide an energy savings guarantee to REEG that the REEG can pass on to the client. REEG is of the opinion that the savings guarantee used in conventional contracting models, with costly regular checks throughout the whole contractual period, is materially disproportionate to the costs of the guarantee.

The savings guarantee used by the REEG is a special **simplified version of a savings guarantee**, which is reasonable for the technical partners and sufficient for the REEG and clients. The energy savings guarantee contract outlines the specific details of the simplified savings guarantee.

REEG technical partner contract

For several technical partners, just one contract is generally concluded between the REEG and the consortium leader. The object of the contract is both REEG services and technical partner services.

Most significantly, the latter includes an energy savings guarantee for the REEG. Furthermore, the technical partner assumes a quality guarantee and a warranty for the newly installed equipment, where the warranty period is determined on a case-by-case basis.

The warranty period should at least be equal to the contractual term. Extensions to the warranty may be negotiated for longer contractual terms. In return, an amount shall be specified in the contract for a fee payable by the REEG to the technical partner for the services provided. The planning costs are generally included in the fee. In addition, special agreements can be made, for example concerning who bears the costs of detailed planning if the contract falls through.

Calculating the contracting rate

An offer is prepared based on a calculation of monthly contracting rates in accordance with the client's financing wishes. REEG offers 100 percent financing, so that the measure has a neutral impact with respect to the client's budget, or has a neutral impact with respect to the government's budget, where applicable. However, a mix of financing is also available, where the client and the REEG split the financing using a fixed ratio.

For 100 percent financing, the contracting rate is calculated by the REEG as follows: The starting point is the REEG's costs. These consist of interest costs for capital and the cooperative's operating and management costs. Each REEG must set the cost amount, taking its own circumstances into account. The contracting rate is then calculated like an annuity loan.

The REEG has used the B.A.U.M. Zukunftsgenossenschaft conditions as a reference. Like an annuity loan, it calculates the contracting rate by using an existing calculation tool. 4 percent is for interest on subordinated loans, 3.15 percent is for operating and management costs and 2 percent is for the risk premium. The cooperative's average costs are calculated at around 2.5 percent p.a. without taking into account interest on capital. These conditions are extremely favourable in comparison to other contracting offerings.

Offering clients an energy savings guarantee contract

As the name suggests, the contract includes a savings guarantee for the client, which is secured by the technical partner (see above). The guarantee is defined as follows: The REEG determines the average annual requirement of energy consumption that can be influenced together with the client. The basis for this was the data from REEG's submitted concept. Where applicable, the previous findings of a certified energy consultant fed into this.

The REEG guarantees the client that its energy consumption will decrease even if the requirement does not change and the equipment is not changed. The guaranteed saving is solely based on technical measures.

Other aspects (for example, use changes, change of energy supplier or change in energy prices or taxes) are not taken into consideration.

If consumption measurements are taken as part of acceptance, the parties shall take the consumption measurements before measure implementation begins, based on Annex A5 of the contract, and repeat this measurement when the measure is accepted.

Both parties record the outcome of the measurement. If the measurement taken out based on Annex A5 shows that the savings guaranteed by the REEG have been achieved (with an agreed tolerance of +/- 5 percent), the installed assets are approved. A typical energy efficiency measure that is generally used in this process is the installation of a voltage regulator.

Should the measurement show that the savings guaranteed by the REEG have not been achieved, the REEG has an opportunity to rectify this, in accordance with Annex A5. In turn, if the outcome of the measurement is not in line with the saving guaranteed by the REEG, the client may withdraw from the contract or renegotiate the conditions of the contract.

Phase 3: Project implementation

When the client concludes the contract, it is purchasing a service package from the REEG. The REEG management's responsibility is to monitor the technical implementation of measures by technical partners for the client and to intervene in the interests of the client if necessary. The implementation of measures ends upon turnkey handover, including the acceptance report and any general documentation for ISO 50001 (presentation of CO2 white certificate).

Phase 4: Contractual term

During the contractual term, the REEG is obligated to provide a guaranteed savings warranty in accordance with the energy savings guarantee contract, and to provide a warranty as part of the manufacturer's guarantee and the technical partner's guarantee. After the contractual term, the client generally obtains
ownership of the equipment.

Outcomes and experiences from the pilot project

General

Selecting pilot municipalities

The following criteria was used to select pilot municipalities:

1. Different sizes and structures for pilot municipalities
2. Balanced distribution in the area
3. Sufficiently large population of businesses, public bodies and not-for-profit institutions as well as private households for the REEG's business activity
4. Outstanding municipal commitment to climate protection, or energy efficiency/energy conservation
5. Citizen commitment to climate protection/renewable energies/energy conservation issues
6. Other sustainable activities in the municipality
7. Municipal interest in the REEG model project

The three municipalities selected by the REEG project are of different sizes and structures: With around 102,000 residents, the administrative district of Berchtesgadener Land (BGL) is characterised by its rural nature. With around 75,000 residents, the city of Norderstedt is a medium-sized city in the affluent suburbs of Hamburg; a strong economic area with large national and international companies. With around 240,000 residents, the city of Aachen is at the centre of the general Aachen region, which is characterised by small towns and rural areas. All three municipalities have examples of outstanding activities in municipal climate protection and/or energy efficiency/energy conservation. The municipalities were selected after receiving a commitment from the mayors of the cities of Aachen and Norderstedt as well as from the District Council for the Berchtesgadener Land administrative district to take part in the practical implementation of an REEG. This meant that practical project work could begin locally.

The project was initially presented in greater detail to municipal political and administrative representatives in the pilot municipalities and the subsequent approach was agreed locally. To this end, discussions were held with the District Council for the Berchtesgadener Land administrative district, the mayors of the cities of Aachen and Norderstedt and the Councillor for Environment for the city of Aachen, in which the respective climate protection officers and other administrative members of staff also took part.

Legal obstacles when applying the REEG model

The pilot project showed that applying the REEG model in practice meant encountering

legal obstacles. These mainly related to applicable subsidy law and budgetary law. Both legal frameworks do not take the new and innovative EPC instrument into sufficient consideration (yet).

Subsidy law - funding programmes for companies

REEGs are legal companies. With respect to energy efficiency projects, they have the status of an investor. They are subject to the 'de minimis' rule under subsidy law. This is taken from the European Union's competition law and sets the threshold applicable to state subsidies given to companies where the threshold set is considered to not violate the fundamental ban on aid or subsidies, and the economic benefits gained compared to competing companies that do not receive such a subsidy are considered to be minor and thus negligible. For general de minimis subsidies, the threshold is currently 200,000 euros.

However, this transparent rule for 'normal' companies is counter-productive when applied to the REEG as a company (and other contractors).
This results in clients who engage a service provider to implement energy saving measures possibly losing potential subsidies and thus being in a worse off position than competitors who implement similar measures using their own funds.
Formally, the REEG is an investor, which means that the de minimis rule applies to it and not clients. The REEG only receives state subsidies to implement energy efficiency measures up to a threshold of 200,000 euros, even if it doesn't keep the subsidy and instead passes it on to clients. As the REEG has many clients, the threshold is reached by implementing just a few energy efficiency projects. The REEG then receives no further subsidies and can no longer pass these on to clients.
As a result, companies who have energy efficiency measures implemented by the REEG or another energy service provider lose subsidies due to the application of subsidy law. This loss can be significant. Based on the current 'German Federal Office for the Control of Exports (Bundesausfuhramt, BAFA)' funding programme for using highly efficient cross-sectional technology, the funding rate for small and medium-sized enterprises is 30 percent. As an example, if the investment sum is 100,000 euros, the client loses 30,000 euros, and even for a smaller investment of 30,000 euros, the amount lost is 9,000 euros.
In the worse-case scenario, the subsidy loss leads to potential clients not implementing the project through the REEG, possibly even in cases where the project cannot otherwise be implemented. In the best-case scenario, there is a significant extension to the payback period, which means lots of projects not passing the REEG feasibility review. From the experience gained from the pilot project, it was clear that REEG clients attach great importance to not losing subsidies that they would have received
had they not used REEG as an energy service provider and had they been the investor within the meaning of the funding guidelines.

Budget and procurement law

The implementation of municipal energy efficiency measures by REEG is subject to the provisions of public budget and **procurement law**.
This can also lead to difficulties when implementing such measures by using a contractor. In contrast to private sector companies, public sector clients are obligated to comply with formal procurement guidelines when requesting tenders and awarding contracts (German Construction Tendering and Contract Regulations [Vergabe- und Vertragsordnung für Bauleistungen, Teil A, 'VOB/A'] for construction services, German Contracting Rules for Freelancers [Verdingungsordnung für freiberufliche Leistungen, 'VOF'] for freelance services and German Contracting Rules for Other Services [Verdingungsordnung für Leistungen Teil A, 'VOL/A'] for other services). Energy performance contracting (EPC) mostly involves contracts that are put out to tender in accordance with VOB/A provisions.

Procurement law is not a legal barrier for contracting measures being implemented by public authorities. However, it requires specific training for the procuring authorities in preparing for contracting projects. For many smaller municipalities, this is a serious hurdle.
The federal government responded with the new BAFA programme to promote consultancy for energy saving contracting. Among other things, the funding programme helps to support municipalities in obtaining independent and qualified contracting consultancy, thus tapping into existing energy savings potential in their own properties.

The hurdles encountered in **budgetary law** and the use of it are more serious. There are serious differences in the classification and treatment of EPC between the individual federal states.
However, EPC is generally permitted in all federal states. Classification, and therefore use, differ considerably under budgetary law. Eleven federal states (Baden-Württemberg, Bavaria, Hessen, Mecklenburg-Vorpommern, Lower Saxony, North Rhine-Westphalia, Rheinland-Palatinate, Saarland, Saxony-Anhalt, Schleswig-Holstein, Thuringia) classify EPC as a 'legal transaction similar to a loan', with three federal states (Bavaria, North Rhine-Westphalia, Saarland) making classification dependent on the individual case. Five federal states (Berlin, Brandenburg, Bremen, Hamburg, Saxony) EPC is <u>not</u> a legal transaction similar to a loan.
As such, this classification under budgetary law is of great importance because it determines whether EPC must be reported in the budget and whether or not it should be charged against the municipality's credit facility. One of the greatest advantages of using an energy service provider should in fact be that the measures can be implemented 'off budget', i.e. in a way that has a neutral impact on the budget. If this is not an option, there is no significant incentive for the municipality to use a contractor.
For municipalities that have too many commitments and are under budgetary supervision, using a contractor is not an option.

Small investor protection law (Kleinanlegerschutzgesetz), investment law (Vermögensanlagegesetz), German Investment Code (Kapitalanlagegesetzbuch)

The small investor protection law and the related German Investment Code and investment law all proved to be a temporary hurdle for REEG.

Based on the draft bill for the small investor protection law dated July 2014, energy cooperatives would have been hugely affected if they were to have financed their investment projects using subordinated loans - as an REEG does. Subordinated loans would have been more strictly regulated with the planned changes to the German Investment Code. Anyone who takes out such loans would have had to have had this approved by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and a professional prospectus drawn up. This would have effectively been the end for many existing energy cooperatives as well as the REEG model.

As such, B.A.U.M. e.V. contacted the federal government in October 2014 to refer to the negative consequences for energy cooperatives, and proposed justifiable exceptional regulations for such cooperatives. Fortunately, the small investor protection law draft approved by the federal government in December 2014 provided for exceptions for cooperatives that parliament maintained in the final adoption of the law. Under investment law, cooperatives are released from the duty of drawing up a sales prospectus and having this reviewed by BaFin, as well as the duty of having annual financial statements, including a management report, audited and tested on an annual basis if investments are exclusively offered by cooperative members. The offering must refer to the fact that there is no duty to have a prospectus.

However, cooperative boards must ensure that members are provided with key information about the investment before a contract is concluded. There is also a guideline for member loans that states that performance-based remuneration cannot be provided for sales. In the advertising material for membership, cooperatives may refer to the fact that they are financed by member loans. However, advertising cannot refer to memberships and member loans together.

Project acquisition and implementation

In the pilot project, project acquisition was more difficult and more costly than expected. This was partly due to the fact that a new business model had to be communicated to those involved first. It was also due to the fact that project acquisition took place over long stretches of a phase when the respective REEG had not yet been founded and only existed as an abstract model with no practical reference point.

There was uncertainty from both companies and local government, and some reservations when the REEG model was assessed.

When evaluating REEG conditions, potential clients often compared apples with oranges, i.e. the cost of a comprehensive REEG service package with the pure financing costs involved in a bank loan.

The actual limitations of implementation in-house were also partially ignored, for example the frequent internal corporate objective of not being involved with investments that have a payback period of more than two or three years, or for municipalities, lack of funds due to the budget, as well as bans on further borrowing due to over-commitment. This approach resulted in profitable energy efficiency measures that had been identified being put off once again and immediate income being lost, even though the REEG offering would have provided an opportunity for immediate implementation with immediate energy cost reductions.

The long standard period of time between the client's request of whether the REEG would implement a certain energy efficiency project and under what conditions, and the legally binding conclusion of the EPC contract, made project acquisition difficult in the pilot project. This period was between six and twelve months.

Another experience of project acquisition in practice was also that there was a difference between activated and acquired measures. This is always the case when the REEG shows a client what technical efficiency measures it can implement; the client receives an offer from REEG but it does not ultimately lead to a contract being concluded.
This happened in the pilot municipality of Norderstedt, where the REEG submitted an offer together with a technical partner via an energy savings contract for lighting improvements in several industrial warehouses with an investment volume in the hundreds of thousands, but the company's board ended up opting for implementation without an REEG.

In some other cases, project acquisition fell through due to funding that would have been lost for the business or institutions had the measures been implemented by the REEG. In the administrative district of Berchtesgadener Land, the acquisition of municipal projects was blocked for a long time due to the fact that the mayors of the communities had first wanted to ensure that the EPC classification as a legal transaction similar to a loan was handled by the responsible state ministry in a municipality-friendly way.

There was inevitably a chicken-and-egg problem for B.A.U.M. in project acquisition in the pilot project. To be able to genuinely acquire projects, there has to be an existing REEG with binding conditions set by the board that has members that are able to provide capital. Conversely, establishment proves to be difficult if there are no projects. The original intention of founding an REEG in the pilot municipalities of Aachen and Norderstedt in 2014 did not transpire because those involved locally were of the opinion that there first had to be enough projects that were in the contract stage. It was also not possible to completely resolve this dilemma through a declaration of readiness of the existing national B.A.U.M. Zukunftsgenossenschaft to assume project implementation for the REEG as a substitute. In

the pilot municipality of Norderstedt, the establishment of the REEG was postponed to the beginning of November 2015, whilst establishment in Aachen was further postponed.

The fact that, due to its nature, there were no REEG reference projects available for a long time also made project acquisition difficult - i.e. for convincing companies as well as municipalities or other institutions of the benefits of the model. However, based on experience, local and regional testimonials can even encourage copycats. Once it was possible for the first REEG measures to be implemented through B.A.U.M. Zukunftsgenossenschaft in the pilot municipality of Norderstedt, and once local television reported on the project, there were then several enquiries from businesses as to whether the cooperative was able to implement similar measures for them as well.

In another case acquired and implemented by the REEG, another point that had to be taken into consideration became apparent: the size of the project. Experience has shown that private contractors generally only take on projects with energy costs of 150,000 euros to 200,000 euros p.a., because the costs of consultancy, handling, management, risk, etc. can only be reasonably priced if the projects are of this scale. But the REEG makes the claim that it also takes on smaller projects with energy cost savings of just 20,000 euros p.a., as an example. There are several possibilities with respect to how to approach the problem. Understanding can be promoted among clients that the REEG accepts a higher percentage of costs in small projects, which is currently possible due to high efficiency returns, but is a psychological problem.
If projects have been initiated by B.A.U.M. in the pilot municipalities for which an offer is to be prepared with local and/or regional technical partners - or by B.A.U.M. Zukunftsgenossenschaft as a substitute - some cases showed that local technical partners sometimes weren't familiar enough with the EPC model, and especially not for the REEG. This particularly affected the technical partner granting a savings guarantee under the REEG model.

Although the initial difficulties outlined in this chapter are typical for a model project, they still contributed to project acquisition being more time-consuming than previously planned.

Capital acquisition

There are generally three options for an REEG creating the capital required for the investment measures it will implement:

1. Through cooperative members, whether this is in the form of subscribed cooperative shares or in the form of subordinated loans that the members grant to the cooperative.

2. Through bank loans, whereby the subordinated loan primarily provided for in the REEG model for financing would be considered to be equity from the perspective of creditworthiness.
3. Through a 'sustainable bond market'; its volumes were estimated to be around 198 billion euros in 2014 in Germany, Switzerland and Austria. An example of a special energy efficiency fund is the Swiss SUSI fund.

In the pilot project, the first approach was used, as this was particularly well-suited to a citizens' energy cooperative. The REEG model does not primarily use cooperative shares, but member loans (subordinated loans) as a source of financing, because this means that

- double taxation on the cooperative's earnings can be avoided for corporation tax, trade tax and capital gains tax; under tax law, shares are considered to be equity, whereas subordinated loans are considered to be debt capital;
- the investors (members) receive fixed interest instead of dividends which are dependent on profit; and
- the required capital can be acquired specifically for the project in exactly the amount required and at the time needed.

Both interest on subordinated loans and dividends for cooperative shares
are subject to taxes on income from capital assets (withholding tax). The
tax rate is limited to 25 percent plus a solidarity surcharge of 5.5 percent. With respect to church tax liability, capital gains tax is reduced by 25 percent of the church tax due on capital gains. If dividends are paid, tax must be paid by the cooperative; if interest is paid on subordinated loans, the recipient is obligated to pay taxes on this.

Income from member shares is also subject to taxes to the extent applicable to cooperatives: corporation tax (15 percent plus solidarity surcharge) and trade tax (between 7 percent and 17.5 percent). So that double taxation does not take place, no share dividends are distributed in the REEG model. Accordingly, the amount of shares in the REEG model is kept as low as possible (for example, at 100 euros). Capital is mainly created through subordinated loans.

Potential investors in subordinated loans are dutifully referred to the risks to their assets. In the event of insolvency, there is only a claim to repayment once the interests of all other creditors have been served. However, investor liability is limited to the loan amount. Investors are not obligated to make additional contributions.

The pilot municipalities

The city of Aachen pilot municipality

Establishing the REEG - approach and outcome

The pilot municipality of Aachen was selected due to its decades of being a pioneer in the area of energy and climate protection. As early as 1993, a comprehensive energy concept was developed in the city of Aachen to reduce pollution. The 'Aachen model' to generate electricity from renewable energies in a cost-effective way was the precursor to the national German Renewable Energy Source Act (Erneuerbare-Energien-Gesetz, EEG).

On the city of Aachen's part, the Head of the Climate Protection Department, a very experienced administrative employee, expertly supervised the pilot project in a very committed way.

After the kick-off event, three working groups were formed (Articles of Association, Business Plan and Project Acquisition).

The Articles of Association SWG drew up draft Articles of Association for REEG Aachen based on the template articles of association for the Rheinisch-Westfälischer Genossenschaftsverband (RWGV) Federation of Cooperatives.

The draft articles of association deliberately left the option of extending the cooperative's area of activity open. It was also decided that even investors that did not come from the region would also be given the opportunity to invest in the cooperative. The share required to gain membership in the cooperative was ultimately set at a very low level of 100 euros in view of the primary intention of creating capital through subordinated loans.

The risks from the REEG's business activity was an important issue for founding members. Questions, such as the board's liability risks and the risk for members in the event of a client's insolvency, were posed and answered.

In addition, questions concerning the type of subordinated loan - final maturity or annuity - were discussed in depth. Ultimately, the SWG decided to use annuity loans instead of final maturity loans as a basis for planning capital acquisition.

The Business Plan SWG declared that they were in favour of only taking steps closer to founding the cooperative once several projects had been acquired and were in the contract stage. The narrower founding group of REEG Aachen endorsed this view. To increase the potential of efficiency measures for the Aachen REEG, and predominantly in the municipal sector, the activity area was extended to the whole Aachen city region. This meant the number of residents in the Aachen REEG area more than doubled - from 240,000 to 540,000.

Having energy efficiency projects in the contract stage with an investment volume of at least 1.5 million euros was considered to be a necessary condition of establishment in order to avoid the initial losses outlined above, or to keep these as low as possible.

As project acquisition required more time and resources than expected, it was not possible to achieve the required investment volume for projects in the contract stage by the planned founding deadline. The founding group postponed the establishment of the Aachen REEG by six months. The 'chicken-and-egg dilemma' was a factor here. To further push forward project acquisition in the city and city region of Aachen, local REEG management was set up. However, local management did not bring about the quick success that those involved had hoped for. June to October, a period in which the summer holidays fell, proved to be too short to acquire projects with a volume of 1.5 million euros that were in the contract stage. As such, the founding group once again decided to postpone the October 2015 establishment of the cooperative. By the end of the project, an REEG was not founded in Aachen.

Project acquisition, capital acquisition and project implementation

It was possible to identify 20 projects, of which five were classified as 'priority', i.e. reviewed and recommended for implementation. Of these, it was possible to progress one large project (lighting improvements in a school) to the contract stage and to provide an offer to the client.

Valuable experience was gained, including experience of the hurdles that may prevent the REEG business model from being applied in practice.

One of these is the **de minimis rule** that relates to subsidies that has already been outlined above. A printing company (conversion to LED with a total investment cost of around €80,000) assumed in its plans that a project from the BAFA programme 'Funding for Cross-Sectional Technologies' would receive a 30 percent subsidy. At this point, it had to be informed that as an investor, REEG is also eligible for the subsidy but under current legislation is subject to the de minimis rule like any other company, which limits its subsidies to 200,000 euros. As the REEG has lots of projects that are eligible for funding, it cannot be absolutely guaranteed that a certain project will be funded, as it is not known whether an investment will take effect before or after the threshold is breached. This uncertainty leads to potential clients deciding to not proceed with having energy efficiency measures implemented by the future REEG Aachen.

There was a similar situation with the feasibility review for a project that appeared to be ready for REEG to take over: lighting improvements in a school with an association as a private provider. There was also a funding problem here - not due to the de minimis rule but due to the **funding guidelines for one of the federal government's programmes.** If the

school were to have implemented the energy efficiency measures itself as an investor, it would have been eligible at the time to apply for the Federal Ministry of the Environment's 'LED Funding for Municipalities 2015/2016' as a not-for-profit association. Contractors are explicitly not eligible to apply for this programme. Without this funding, the payback period for the measures would have increased from six to nine years. Due to these circumstances, in the end, the school did not accept the draft contract provided.

Even in the case of the private school, it was clear that the legal framework conditions for energy efficiency funding programmes were not yet geared to the business models of energy service providers.

Another experience of the pilot project in Aachen relates to **collaboration with regional technical partners**. As the REEG model as a contracting model greatly differs from other business processes familiar to tradesmen and manufacturers, this can result in a loss of efficiency in preparing and submitting offers for initial projects. Even the submission of offers to the REEG as an investor and not to the client is unfamiliar territory for many craftsman's businesses. Providing the REEG with a savings guarantee to pass on to clients is something that is completely new to technical partners. Most regional technical partners don't have any experience with EPC and the underlying contract, which includes the savings guarantee.

The Berchtesgadener Land administrative district pilot municipality

Establishing the REEG - approach and outcome

The Berchtesgadener Land administrative district was selected as a pilot municipality because it uses a current 'Integrated Climate Protection Concept'.

As the existence of the VR EnergieGenossenschaft Oberbayern Südost e.G. meant there was already an energy cooperative in the administrative district, but with the sole business purpose of building and operating renewable energy plants, it first had to be clarified whether REEG Berchtesgadener Land would become a cooperative by expanding the business area of the existing cooperative to energy efficiency or by founding a new cooperative. The WG (initially) decided to establish a new cooperative.
Draft articles of association were prepared using the expertise of a set-up consultant from the Bavarian Federation of Cooperatives for Munich, whose advice the Articles of Association working group took on board.

In parallel to this, discussions were held with the Berchtesgadener Land municipal savings bank at board level, with respect to the bank's participation in the newly founded REEG. There was no direct interest from the savings bank to participate. However, the possibility of collaboration between the REEG and the savings bank was discussed, for example with

respect to the bank's clients' loan-financed energy efficiency investments where the clients engage an REEG to provide equity and implement measures.
There was no further discussion of the draft articles of association in the REEG WG. The reason: in July 2014, the mayoral assembly for the Berchtesgadener Land administrative district approached the issue of the establishment of the REEG. In the meeting, 15 mayors made the unanimous decision to recommend that, as a leading pilot municipality, the administrative district took the approach of further developing the solar energy cooperative VR EG Oberbayern Südost e.G. to make it an REEG instead of founding a new cooperative. The existing energy cooperative was already well-known in the administrative district's cities and municipalities and, due to the collapse of the solar plant business area in search of new business areas, had resolved at its general assembly in June of that year to expand its business area to include energy efficiency, and had amended its articles of association accordingly.

Project acquisition, capital acquisition and project implementation

It was possible to identify 29 energy efficiency measures, of which eleven were classified as 'priority', i.e. reviewed and recommended for implementation. Of these, eight were implemented during the project.

An example will illustrate the complex project implementation with unforeseeable hurdles for an REEG:

The owner of a hotel, a markedly environmentally-conscious company, had a package of efficiency measures on its agenda. Due to major construction investments in the core business, these measures had not initially been implemented. The REEG concept of taking on 100 percent financing and the function of 'taking care of implementation' changed their mind. The owner of the hotel decided to initially have two energy efficiency measures implemented by the future REEG, if this was possible: replace around 2,000 of the hotel's lights with LED lights and install a pool cap on the all-year-round outdoor pool. The feasibility review was successful and the exact savings potential was calculated by a BAUM-Consult Munich energy consultant.

The following specifications and features must be noted for the hotel project:

- Client request for 100 percent financing by the REEG for the measures and retention of a third of the savings by the client during the contractual term
- Implementation of tradesmen services by client itself (instead of using regional companies) - i.e. parts delivery only

- Pricing of a subsidy totalling 30 percent of the KfW energy efficiency programme, to the client's benefit

The basis for the savings guarantee between REEG Berchtesgadener Land and the client based on the B.A.U.M. model would have to be a corresponding grant of a guarantee by both technical partner companies for the lighting exchange and the pool cap. However, in the negotiations that were held in parallel to client negotiations, neither company was prepared to grant such a guarantee. So as not to jeopardise the conclusion of the client contract and the REEG's first project, in the end, both technical partner contracts were concluded as normal purchase contracts with a manufacturer's warranty.

Unexpected and unforeseeable problems were encountered in implementation, which was managed by REEG management as per the contract. On the one hand, they showed what benefits the REEG all-inclusive package can have for clients: REEG taking on time-consuming managerial tasks and warranty processing. On the other hand, this example clearly shows that the cooperative's management fee is justified, and why, and that the client cannot compare the REEG's costs to those of a bank loan. The REEG not only takes care of financing, but also selects technical partners and technologies, implements measures (turnkey handover) and handles warranty claims.

The latter occurred in the case of the hotel project. Problems started with the delivery of light parts that did not correspond with the requirements on-site. The subsequent delivery of the 'right' lights by the technical partner was taken over by a series of light failures within a short period of time, which meant lights could not be turned off even when the lights were changed. It was found that the lights had manufacturing defects. The only remedy was to use lights from a different manufacturer. The costs incurred could be claimed under the manufacturer's guarantee and it was possible to implement the efficiency measures as scheduled in spite of this; however the client was understandably disgruntled and this meant that considerable additional management costs were incurred by the REEG.

Even the installation of the pool cap didn't go as planned. An individual structural element was missing and there were delivery problems with the manufacturing company, which meant there was a delay of two and a half months (installation was completed in March instead of January). This resulted in a loss of savings for the winter months, which would have been relatively high. Overall, the following lessons were learned from implementing energy efficiency measures in the REEG Berchtesgadener Land's first hotel project:

- Switching from conventional lights to LED lights in a hotel as well as installing a pool cover for an outdoor swimming pool are both highly profitable energy efficiency measures with a short payback period.
- When selecting a technical partner, it must be clarified in advance whether it is prepared to grant a savings guarantee that can be passed on to the REEG's client. In

cases of doubt, quality and willingness to accept a guarantee are factors that take precedence over the partner being local to the region.

- If the client is responsible for tradesman services, which should only be an exception in practice, this leads to additional interface problems in REEG's feedback chain of technical partner - client - REEG.

The lower the investment volume, the more difficult it is for the REEG to adequately price its operational management costs, which cover the selection of technical partners, contractual negotiations, implementation management and taking care of any guarantee services. The approximate rate of 2.5 percent p.a. that the B.A.U.M. REEG model recognised for management costs on average for the contractual term only covers costs if the investment amount is less than 100,000 euros and the conditions are perfect. For high gross returns on energy efficiency measures and short payback periods, higher percentages for costing approaches appear to be appropriate for low investment measures in specific cases.

The city of Norderstedt pilot municipality

Establishing the REEG - approach and outcome

The pilot municipality of Norderstedt was also selected due to its excellent performance with particular reference to the area of municipal climate and environmental protection. The city has received over 50 awards and certificates for its dedication to sustainability. The mayor declared that sustainability was a top priority and sees it as an essential location factor. The city has its own administrative unit dedicated to the issue - the Norderstedt Office for Sustainability. The project was seen as important additional impetus to make Norderstedt's existing climate protection measures have an even more widespread effect and to specifically address the current issue of energy efficiency using
a new approach.

This was followed by a kick-off event with the subsequent establishment of three sub-working groups: Articles of Association, Business Plan and Project Acquisition.

In a further step, persons were identified who would be considered for positions on the board and the supervisory board for the future REEG Norderstedt. The existing WG REEG and sub-working group networks were extremely useful here. Joint preparatory work meant that there was a group of people who knew the project well and could be contacted directly. When appointing roles on the cooperative's bodies of the board and the supervisory board, care was taken to appoint representatives from the three target groups of companies, municipalities and citizens, where the priority was for such persons to have business management and (energy) technology skills. The target approach proved to be successful from the beginning. In just two weeks, commitment was given by five board members and three supervisory board members.

The following body members expressed their willingness to take on a role on the board or supervisory board:

- **Board** (the authorised signatory of a municipal nursing home; a representative guild master for the district's craft trades guild; a lawyer and former employee of the Federation of Cooperatives; a former high school teacher and member of a number of citizen initiatives; a pastor and nationwide church official)
- **Supervisory board** (the managing director of a Norderstedt company; the honourable mayor of the Ellerau municipality; a citizens' representative, member of several citizen initiatives)

The inaugural general assembly of the Norderstedt energy efficiency cooperative took place on 03/11/2015, led by a representative of the auditing association Deutschen Verkehrs, Dienstleistungs- und Konsumgenossenschaften e.V. The articles of association and the business plan for REEG Norderstedt were approved. As such, the Norderstedt REEG was in the course of formation.

A joint board and supervisory board meeting took place after the inaugural general assembly. In this, it was decided, among other things, to appoint full-time management for the cooperative. The representative of the B.A.U.M. project team responsible for Norderstedt was appointed the interim managing director (until the project end date of 31/03/2016). In addition, it was also resolved that lighting improvements for the city's underground parking would be taken on as the first municipal project for the newly founded REEG Norderstedt, and a corresponding savings guarantee contract would be drafted. Following the inaugural general assembly, all relevant documents - with particular reference to the articles of association and the business plan - were sent to the auditing association.
After receiving a (positive) opinion from the auditing association, the notarial registration for entry into the register in the Kiel Regional Court took place on 06/01/2016. Entry into the Register of Cooperatives was made on 28/01/2016 and thus the status of the REEG in the course of formation was transferred to final REEG status.
When the cooperative was founded, several board and supervisory board meetings were held to make important fundamental decisions about capital and project acquisition and to carry out internal approval and decision-making processes.

Project acquisition, capital acquisition and project implementation

It was possible to identify 42 energy efficiency measures, of which 20 projects were classified as 'priority', i.e. reviewed and recommended for implementation.
Of these, six projects were ready for the contract phase during the course of the project, and in turn, one project was then implemented by 31/03/2016.

The search for potential municipal and operational projects was facilitated by close contact made with the city of Norderstedt and the Ellerau municipality, as well as the involvement of business representations in the REEG Norderstedt WG, from the beginning.

The outcome of the feasibility review was that, of all the potential municipal measures, seven measures were recommended for implementation. As REEG Norderstedt was only founded in November 2015, B.A.U.M. prepared offers for the above-mentioned municipal measures via the national B.A.U.M. Zukunftsgenossenschaft as a substitute.
This involved obtaining a number of different technical partner offers from regional workshops and plant suppliers, estimating cooperative costs and preparing corresponding savings guarantee contracts. There was a total investment sum of around 560,000 euros for municipal projects.

In parallel to this, the Project Acquisition working group looked for suitable commercial projects. Most of the time, contact first had to be established with companies. Information events were organised together with the city of Norderstedt and the Entwicklungsgesellschaft Norderstedt (EGNO) to present the project to Norderstedt companies and to generate measures. Other companies became aware of the REEG Norderstedt pilot project through a press release and registered their interest in a measures review.

On-site appointments took place with the interested companies, where REEG's offering was explained in further detail and potential suitable efficiency measures that could be taken on by REEG were discussed.

After the technical partners carried out a review and provided an offer, there were potential REEG corporate projects with an investment volume of around 1.4 million euros.

The largest project by far that REEG Norderstedt or B.A.U.M. was able to identify was a project involving lighting improvements for a large company with 14 industrial warehouses, which had an investment volume of €800,000. Despite having a qualified offer from a technical partner that specialised in lighting who had already implemented over 800 projects, and despite annual electricity savings of €220,000 through an LED installation, the REEG offer was not accepted. The company's board decided to implement the project in-house.

Even in Norderstedt, project acquisition took more time than anticipated. In practice, it was also clear in the pilot project that there were lots of steps involved before concluding an energy saving contract, which requires time. This starts with initial contact locally, and the engagement of an energy consultant if necessary, proceeding to looking for and selecting a technical partner including the creation of detailed analysis/planning, drafting a cost

estimate and an savings guarantee contract, through to negotiations for the contractual offer and the conclusion of contracts with clients and technical partners. The time required up to contract conclusion is generally six to twelve months. For municipal projects, the obligation to put the EPC contract out to tender must normally be taken into consideration, as well as budgetary law.

The first project that was implemented in Norderstedt under the REEG model involved lighting improvements for the company Partyservice Japp. REEG Norderstedt initially arranged a funded energy consultancy, which was provided by B.A.U.M. Consult Hamburg. One expert suggestion was to replace the out-dated lighting equipment with highly modern and energy-efficient LED lights.

The owner of the company decided to have these measures implemented by REEG Norderstedt. As project implementation took place before the cooperative was founded, B.A.U.M. Zukunftsgenossenschaft assumed the implementation of measures, including financing, as a substitute.